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Address to:
Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Attorney's Docket No. SONY-C7751
[S97P751US00]
First Named Inventor HISATO SHIMA

UTILITY PATENT APPLICATION TRANSMITTAL
(under 37 CFR 1.53(b))

SIR:

Transmitted herewith for filing is the patent application entitled:
DIGITAL RECORDING APPARATUS AND COPYRIGHT PROTECTION METHOD THEREOF

CERTIFICATION UNDER 37 CFR § 1.10

I hereby certify that this New Application and the documents referred to as enclosed herein are being deposited with the United States Postal Service on this date MARCH 3, 2000, in an envelope bearing "Express Mail Post Office To Addressee" Mailing Label Number EL254108553US addressed to: Box Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

JOHN LYDDAN

(Name of person mailing paper)

(Signature)

Enclosed are:

1. ☒ Transmittal Form (two copies required)
2. The papers required for filing date under CFR § 1.53(b):
 - i. 24 Pages of specification (including claims and abstract);
 - ii. 5 Sheets of drawings.

☐ formal ☒ informal
3. Declaration or oath
 - a. ☐ Newly executed (original or copy)
 - b. ☒ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Item 12 completed)
 - ☒ Incorporation By Reference (to be used if Item 3b is checked)

The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Item 3b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

 - i. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b)
4. ☐ Microfiche Computer Program (Appendix, see 37 CFR 1.96)
5. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - i. ☐ Computer Readable Copy
 - ii. ☐ Paper Copy (identical to computer copy)
 - iii. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

6. ☒ An assignment of the invention to is attached (including Form PTO-1595).
The prior application is assigned of record to Sony Corporation;
Assignment recorded in PTO on January 26, 1998, Reel 8921, Frame(s) 0396.

- ☐ The prior application is assigned, and the assignment (copy attached) was submitted to PTO for recording on .
- i. ☐ 37 CFR 3.73(b) Statement (when there is an assignee)
7. ☒ Power of Attorney
8. ☒ An Information Disclosure Statement (IDS) is enclosed.
9. ☐ Preliminary Amendment.
10. ☒ Return Receipt Postcard (MPEP 503 -- should be specifically itemized)
11. ☐ Other

12. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information

- ☒ Continuation
☐ Divisional
☐ Continuation-In-Part (CIP)

of immediately prior application No. **08/922,862**, filed **September 3, 1997**.

- i. RELATE BACK - 35 USC 120: If one of the above boxes are checked, please amend the specification by inserting before the first line the sentence: --This is a [XX] continuation [] divisional of Application no. 08/922,862, filed September 3, 1997 --

[Note to form user: lines for item 12 are intentionally spaced to permit Examiner amendments.]

ii. MAINTENANCE OF COPENDENCY OF PRIOR APPLICATION

(This item must be completed and the necessary papers filed in the prior application if the period set in the prior application has run).

- ☐ A petition, fee and response has been filed to extend the term in the pending prior application until --
☐ A copy of the petition for extension of time in the prior application is attached.

iii. CONDITIONAL PETITIONS FOR EXTENSION OF TIME IN PRIOR APPLICATION

(Complete this item and file conditional petition in prior application if previous item (ii) not applicable).

- ☐ A conditional petition for extension of time is being filed in the pending prior application.
☐ A copy of the conditional petition for extension of time in the prior application is attached.

13. FOREIGN PRIORITY

- [X] Priority of application no. P08-255464 filed on September 5, 1996 in Japan is claimed under 35 USC 119.

The certified copy of the priority application:

☐ is filed herewith; or

- ☒ has been filed in prior application no. 08/922,862 filed on September 3, 1997, or
☐ will be provided.

☐ English Translation Document (if applicable)

14. FEE CALCULATION

- a. ☐ Amendment changing number of claims or deleting multiple dependencies is enclosed.
- b. ☒ Cancel in this application original Claims 2-11 of the prior application before calculating the filing fee.

CLAIMS AS FILED

	Number Filed	Number Extra	Rate	Basic Fee (\$690)
Total Claims	1 - 20	* 0	x \$18.00	0
Independent Claims	1 - 3	* 0	x \$78.00	0
Multiple dependent claim(s), if any			\$260.00	0

*If less than zero, enter "0".

Filing Fee Calculation \$690.00

50% Filing Fee Reduction (if applicable) \$

15. Small Entity Status

- a. ☐ A small entity statement is enclosed.
- b. ☐ A small entity statement was filed in the prior nonprovisional application and such status is still proper and desired.
- c. ☐ is no longer claimed.

16. Other Fees

- ☐ Recording Assignment [\$40.00] \$
- ☐ Other fees \$
- Specify _____

Total Fees Enclosed \$690.00

17. Payment of Fees

- ☒ Check(s) in the amount of \$ 690.00 enclosed.
- ☐ Charge Account No. 12-1420 in the amount of \$ ____.
- A duplicate of this transmittal is attached.**

18. All correspondence regarding this application should be forwarded to the undersigned attorney:

Charles P. Sammut
Limbach & Limbach L.L.P.
2001 Ferry Building
San Francisco, CA 94111
Telephone: 415/433-4150
Facsimile: 415/433-8716

19. Authorization to Charge Additional Fees

- ☒ The Commissioner is hereby authorized to charge any additional fees (or credit any overpayment) associated with this communication and which may be required under 37 CFR § 1.16 or § 1.17 to Account No. 12-1420. **A duplicate of this transmittal is attached.**

LIMBACH & LIMBACH L.L.P.

March 3, 2000
(Date)

Attorney Docket No. SONY-C7751
[S97P751US00]

By: Charles P. Sammut
Charles P. Sammut
Registration No. 28,901
Attorney(s) or Agent(s) of Record

DIGITAL RECORDING APPARATUS AND
COPYRIGHT PROTECTION METHOD THEREOF

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to a technique for processing copyright information in recording apparatus such as digital video cassette recorders (refer to as DVCR hereinafter) provided with a digital interface based on IEEE1394 format and computers.

Description of the Related Art

Commercial DVCRs which record/reproduce digitized video signals and audio signals have been commercially available. Such DVCR is provided with an interface for inputting and outputting video signals and audio signals as they are digital. Therefore, digital doubling is possible between DVCRs provided with a digital interface.

The digital interface described herein above is arranged in accordance with IEEE1394. In audio and video signal transmission protocol of IEEE1394, a digital interface transmits signals to a transparent based on the concept that transmission apparatus side and receiving side deal with copyright protection. Therefore a digital

interface transmits signals without copyright information.

Content send by way of a digital interface is divided into two main classes, namely dynamic image signals and other signals (such as computer data and programs). It is required to manage copyright in all apparatus including computers in the case of dynamic image signals. However, in the case of an apparatus such as a computer in which data are writable using a software, copy management information itself can be rewritten.

The present invention has been accomplished in view of such problem, it is the object of the present invention to provide a method for protecting copyright in which an apparatus capable of rewriting copy management information such as a computer can not accept signals other than copy free signals.

In order to solve the above-mentioned problem, the method for copyright protection in accordance with the present invention is the copyright protection method of digital signal to be inputted to a digital recording apparatus provided with a digital interface, in a header of a transmission frame of the digital signal to be transmitted a copyright protection information is contained, the copyright protection information restricts recording

of the digital signal to be inputted to the digital recording apparatus, wherein the copyright protection information includes the copy free information for indicating the digital recording apparatus that the digital signal is copy free, and the information for indicating the digital recording apparatus so that the digital recording apparatus performs copy management in compliance with the copyright information included in the content of the transmitted transmission frame.

A medium in accordance with the present invention is the medium which receives a content including digital signal for performing copyright protection, in a header of a transmission frame of the digital signal to be transmitted a copyright protection information is contained, and the copyright protection information restricts recording of the digital signal to be inputted to the digital recording apparatus, wherein the copyright protection information includes the copy free information for indicating the digital recording apparatus that the digital signal is copy free, and the information for indicating the digital recording apparatus so that the digital recording apparatus performs copy management in compliance with the copyright information included in the content of the transmitted

transmission frame.

The digital recording apparatus in accordance with the present invention is the digital recording apparatus provided with a digital interface, wherein the digital recording apparatus has a means for detecting the copyright protection information provided in a transmission header of a transmission frame of a digital signal inputted through the digital interface, and a means for taking in the transmission frame and for allowing recording processing if the copyright protection information indicates copy free of the digital signal.

The control IC in accordance with the present invention is the control IC for controlling a link layer of a digital interface mounted on a digital recording apparatus provided with the digital interface, wherein the control IC has a means for detecting the copyright protection information provided in a transmission header of a transmission frame of a digital signal inputted through the digital interface, and a means for taking in the transmission frame and for indicating recording processing to the digital recording apparatus if the copyright protection information indicates copy free of the digital signal.

According to the present invention, a recording

apparatus which does not perform processing in compliance with the copyright information with a hardware accepts transmission frames only when the copyright protection information in a transmission header indicates copy free. A recording apparatus which performs processing in compliance with the copyright information with a hardware which accepts transmission frames when the copyright protection information in the transmission header indicates copy free, and when the copyright protection information in the transmission header indicates compliance with the copyright information contained in the content of the transmission frame, the copyright information in the content is fetched based on the signal format type information of the transmission header.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1A and Fig. 1B are diagrams for illustrating the operation of a system to which the present invention is applied.

Fig. 2 is a diagram for illustrating the structure of the isochronous packet.

Figs. 3A and 3B are diagrams for illustrating format of a CIP header.

Fig. 4 is a diagram for illustrating the internal structure of a DVCR which is a CGMS acceptable apparatus including LINC and peripheral components.

Fig. 5 is a diagram for illustrating an ON-OFF switch portion actuated in response to the control performed by a copy free flag processing block for CGMS unacceptable apparatus.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Embodiments of the present invention will be described in detail hereinafter with reference to the drawings.

The present invention addresses on the content (for example, software such as movie pictures and programs transmitted from satellite broadcasts, and software reproduced from media such as video tapes and video disks sold as rental video and video software.) which controls copyright information according to CGMS-D (Copy Generation Management System-Digital) system. An apparatus which can perform copyright protection management based on the management information defined by way of the CGMS-D system is referred to as CGMS acceptable apparatus, and an apparatus which has no function of copyright protection management

is referred to as CGMS-D unacceptable apparatus.

The CGMS-D system indicates copyright management condition using three codes. "00" indicates that the content is copy free, "11" indicates that the content is not copy free, and "10" indicates that the content can be copied only once.

The CGMS acceptable apparatus performs the processing "do not record if the apparatus detects that the content intended to be recorded is dynamic image signals and not allowed to be copied" using the above-mentioned code "00" by means of the hardware provided in the apparatus. The CGMS acceptable apparatus performs the processing "flag is changed to no copy flag and recording is performed if the apparatus detects that the content intended to be recorded is dynamic image signals and allowed to be copied once" using the above-mentioned code "10".

The CGMS unacceptable apparatus does not have a function to perform such processing. The apparatus which does not check the CGMS code by itself but an built-in driver software checks the CGMS code is not included in the category of CGMS acceptable apparatus. In other words, an apparatus in which the response to the CGMS is changeable dependently on a software such as a computer is categorized to the CGMS

unacceptable apparatus.

The operation of a system to which the present invention is applied is shown in Figs. 1A and 1B. Fig. 1A shows a combination of a reproducer 1 and a CGMS acceptable recorder 2 connected with IEEE1394 serial bus 3, and Fig. 1B is a combination of a reproducer 1 and a CGMS unacceptable recorder 4 connected with IEEE1394 serial bus. Herein, the reproducer includes not only a DVCR described herein above but also a digital television tuner and digital television receiver having function to receive digital television broadcast and output digital video signals and digital audio signals to IEEE1394 serial bus.

As shown in Fig. 1A, in the case that the recorder is CGMS acceptable, the transmitted signal can be accepted, and on the other hand, in the case that the recorder is CGMS unacceptable as shown in Fig. 1B, the transmitted signal can not be accepted by the digital interface (herein, IEEE1394 interface) though the signal in Fig. 1B is the same as the signal in Fig. 1A.

A transmission frame (isochronous packet) transmitted to IEEE1394 serial bus has the structure as shown in Fig. 2, in the case that real time data such as digital audio signals or digital video signals are transmitted, a

header referred to as CIP header is added. The format of a CIP header is shown in Figs. 3A and 3B. Fig. 3A shows a CIP header with a time sump (SYT) and Fig. 3B shows a CIP header without a time sump (SYT).

In this embodiment, copyright protection information is added to the digital video signal having the isochronous packet type structure using the reserved area (rsv) (2 bits) of a CIP header as described in (1) and (2) herein under in detail.

(1) A bit which indicates copy free and flag of CGMS-D contained in the content are detected, and a bit which indicates that the recording apparatus should follow the indication is assigned respectively.

(2) Only 1 bit is used, and 0 indicates copy free and 1 indicates that a flag of the CGMS-D in the content is detected and an indication that the apparatus should perform in compliance with the indication is given to the recording apparatus.

In detail, in the case that the recorder is a CGMS acceptable apparatus, if the bit of the reserved area of the CIP header is a bit which is in the condition that indicates copy free, the recorder accepts the data of the content as it is. A flag of CGMS-D is detected, and If the

flag is a flag which is in the condition that indicates compliance with the CGMS-D, the recording apparatus accepts the flag of CGMS-D and performs processing of the copy management in compliance with the CGMS-D. Herein, because location where a flag of CGMS is contained is different depending on the type of the signal transmitted on the IEEE1394 serial bus, the type of the signal is judged based on the FMT (format field) of the CIP header and the location of the flag is confirmed. For example, a flag of a CGMS is located in a VAUX (video auxiliary data) in the case of reproduction signals of DVCR (SD, HD), differently, a flag of a CGMS is located in a PES header in the case of receiving signal of digital broadcast such as DirectTV and DVB.

A recorder that is a CGMS unacceptable apparatus accepts it as it is if the bit of the reserved area of a CIP header is a bit which is in the condition that indicates copy free. The recorder does not accept the input data content if the flag of CGMS-D is detected, and the flag is a flag which is in the condition that indicates the recording apparatus to perform compliance with CGMS-D.

In both cases of a CGMS acceptable apparatus and CGMS unacceptable apparatus, the hardware of link layer control IC of the IEEE1394 interface performs the above-mentioned

processing. In other words, copyright protection is performed by the digital interface using the link layer control IC for a CGMS acceptable apparatus or using the link layer control IC for a CGMS unacceptable apparatus.

Fig. 4 shows the internal structure of a DVCR which is a CGMS acceptable apparatus including a link layer control IC (refer to as LINC hereinafter) with peripheral components. The DVCR is provided with a physical layer control IC (refer to as PHY hereinafter) 1, a LINC 2, a microprocessor 3, a digital VCR signal processor 4, and PLL 5.

PHY 1 performs initialization of the bus and conciliation of usufructuary right. PHY 1 communicates data such as digital video signals and various control signals (control) with LINC 2, and transmits these data and control signals to the cable. Further PHY 1 supplies a system clock (sysclk) to LINC 2. Details of LINC 2 is described hereinafter. The microprocessor 3 performs control of PHY 1 and LINC 2 and acquisition of isochronous communication band. The digital VCR signal processor 4 records/reproduces digital video signals and digital audio signals. PLL 5 receives frame synchronizing information from LINC 2 and generates clock signals (clk), and supplies them to LINC 2 and the digital VCR signal processor 4.

The internal of LINC 2 is divided to three main blocks of isochronous system, asynchronous system, and basic block. The isochronous system is a block for generating and analyzing isochronous packets on which data such as digital video signals are loaded, and the asynchronous system is a block for generating and analyzing asynchronous packets on which control signals such as commands for controlling apparatus are loaded.

The asynchronous system comprises a microprocessor interface 6, control resistor 7, asynchronous packet transmission FIFO 8, asynchronous packet receiving FIFO 9, and self ID packet processing block 10.

Basic block 11 is provided with a clock, CRC, physical interface, transmission block, and receiving block.

The isochronous system comprises a digital signal processing interface 12, isochronous packet transmission receiving FIFO 13, header and synchronous information adding circuit 14, header removing and synchronous information restoration circuit 15, copy free flag processing block 16, CGMS processing block 17, and switch SW.

The microprocessor interface 6 transmits to and receives from the microprocessor 3 the data corresponding to the request from the high order layer.

The microprocessor 3 writes data in the control resistor 7 at the predetermined position to control the operation of LINC 2. While asynchronous packets are transmitted or received, this operation is performed by reading or writing the predetermined address. Further, the partial header of the isochronous packet is transmitted or received through this resistor.

The asynchronous packet transmission FIFO 8 stores temporarily the packet generated by the microprocessor 3. The stored packet is read by the basic block 11 immediately when the bus becomes free.

The basic block 11 writes the packet transferred from the bus in the asynchronous packet receiving FIFO 9. The microprocessor 3 reads it after confirming that the this FIFO is not free.

The self ID packet processing block 10 performs processing of node information received during initialization of the bus, and detects the number of nodes connected to the bus and the node that controls the isochronous channel of the bus.

The physical interface of the basic block 11 performs parallel/serial conversion of transmission data and serial/parallel conversion of reception data. The

transmission block judges condition of the bus, and controls transmission of the packet. The reception block determines a component to be written depending on the type of the received packet (asynchronous or isochronous).

The digital signal processing interface 12 converts data of the digital VCR signal processing system 4 to data of the isochronous packet format while transmitting, and converts inversely while receiving.

The isochronous packet transmission reception FIFO 3 is a FIFO which functions also to transmit/receive an isochronous packet, the packet is read by the basic block 11 as long as the packet is read while transmitting, and the packet is written as long as the FIFO does not overflow while receiving.

The header and synchronous information adding circuit 14 writes the information specified by the IEEE1394 in the header portion (before the data field in Fig. 2). Further the header and synchronous information adding circuit 14 digitizes the frame synchronous signal of a video signal to be transmitted based on the clock in the basic block 11, and writes it in a specified packet.

The header removing synchronous information restoration circuit 15 removes information from the header,

thereafter writes only data in the isochronous packet transmission reception FIFO 3. Further, the header removing synchronous information restoration circuit 15 transmits the bit in the reserved area in a CIP header to the copy free flag processing block 16. Further, the header removing synchronous information restoration circuit 15 restores the frame synchronous signal from the digitized frame synchronous information written in a specified packet based on the clock in the basic block 11.

The copy free flag processing block 16 switches the switch SW to the terminal-a side if the bit in the reserved area received from the header removing and synchronous information restoration circuit 15 indicates free copy, and switches to the terminal-b side if the flag is detected and the flag indicates compliance with the CGMS-D.

The CGMS processing block 17 separates FMT in a CIP header from a digital video signal which is outputted from the digital signal processing interface 12 and inputted through the switch SW, and sends it with the digital video signal and digital audio signal to the digital VCR signal processing system 4.

Therefore, if the bit of the reserved area in a CIP header indicates compliance with the CGMS-D with reference

to the flag of CGMS-D, a digital video signal and digital audio signal are supplied from the digital signal processing interface 12 to the digital VCR signal processing system 4, and FMT is supplied from the CGMS processing block 17. The digital VCR signal processing system 4 identifies the location where the CGMS flag is located based on FMT (which is VAUX data if it is a reproduction signal of DVCR, and which is PES header if it is a digital television broadcast signal), and performs recording processing according to the CGMS flag.

To the contrary, if the bit of the reserved area in the CIP header indicates copy free, only the digital video signal and digital audio signal are supplied from the digital signal processing interface 12 to the digital VCR signal processing system 4, and the digital VCR signal processing system 4 performs recording processing as it is.

The CGMS acceptable apparatus is described hereinbefore with reference to Fig. 4. On the other hand, the CGMS processing block 17 is removed from Fig. 4, the signal line between the digital signal processing interface 12 and digital VCR signal processing system 4 is changed to a two-way signal line, and a switch SW which is turned ON/OFF by the copy free flag processing block 16 is provided

on the two-way signal line, and thereby a CGMS unacceptable apparatus is structured. (Fig. 5)

In the above-mentioned embodiments, copyright protection information is provided in rsv area of a CIP header, however it is possible to provide copyright protection information in an area other than rsv area (for example, sy area in a header information)

As described hereinbefore, according to the present invention only the apparatus which performs correct copy management can accept and record signals from the digital interface.

WHAT IS CLAIMED IS:

1. A copyright protection method of digital signal to be inputted to a digital recording apparatus comprising a digital interface, in a header of a transmission frame of said digital signal to be transmitted a copyright protection information being contained, and said copyright protection information restricting recording of said digital signal to be inputted to said digital recording apparatus, wherein said copyright protection information including:

the copy free information for indicating said digital recording apparatus that said digital signal is copy free, and

the information for indicating said digital recording apparatus so that said digital recording apparatus performs copy management in compliance with the copyright information included in the content of said transmitted transmission frame.

2. The copyright protection method of digital signal as claimed in claim 1, wherein said digital interface is an interface based on IEEE1394 format.

3. The copyright protection method of digital signal as claimed in claim 1, wherein if said digital recording

apparatus is a recording apparatus having the hardware which does not performs processing of data in compliance with said copyright information, said transmission frame is supplied to the digital recording signal processing section only when said copyright protection information indicates copy free.

4. The copyright protection method of digital signal as claimed in claim 1, wherein if said digital recording apparatus is a recording apparatus having the hardware which performs processing of data in compliance with said copyright information, said digital interface detects based on said copyright protection information whether the copyright information included in the content of said transmission frame indicates the compliance, and if the result is YES, said copyright information in said content is acquired based on the signal format type information of said transmission header.

5. A medium for receiving a content including digital signal for performing copyright protection, in a header of a transmission frame of said digital signal to be transmitted a copyright protection information being contained, said copyright protection information restricting recording of said digital signal to be inputted to said digital recording apparatus, wherein said copyright

protection information includes;

the copy free information for indicating said digital recording apparatus that said digital signal is copy free, and

the information for indicating said digital recording apparatus so that said digital recording apparatus performs copy management in compliance with the copyright information included in the content of said transmitted transmission frame.

6. A digital recording apparatus provided with a digital interface, wherein said digital recording apparatus has;

means for detecting the copyright protection information provided in a transmission header of a transmission frame of a digital signal inputted through said digital interface, and

means for taking in the transmission frame and for allowing recording processing if said copyright protection information indicates copy free of said digital signal.

7. The digital recording apparatus provided with a digital interface as claimed in claim 6, wherein said digital recording apparatus is a recording apparatus having the hardware which does not perform processing in compliance

with the copyright information included in the content of said input digital signal, and has a switching means for supplying said transmission frame to the digital recording signal processing section only when said copyright protection information indicates copy free.

8. The digital recording apparatus provided with a digital interface as claimed in claim 6, wherein said digital recording apparatus is a recording apparatus having the hardware which performs processing in compliance with the copyright information included in the content of said input digital signal, said digital interface has:

a processing block for detecting based on said copyright protection information whether the copyright information included in the content of said transmission frame indicates the compliance, and

a block for acquiring said copyright information in said content based on the signal format type information of said transmission header if the detection result is YES.

9. A control IC for controlling a link layer of a digital interface mounted on a digital recording apparatus provided with said digital interface, wherein said control IC has;

means for detecting the copyright protection

information provided in a transmission header of a transmission frame of a digital signal inputted through said digital interface, and

means for taking in the transmission frame and for indicating recording processing to said digital recording apparatus if said copyright protection information indicates copy free of said digital signal.

10. The control IC as claimed in claim 9, wherein said control IC is mounted on said recording apparatus which does not perform processing in compliance with the copyright information included in the content of said input digital signal, and has a switching means for supplying said transmission frame to the digital recording signal processing section only when said copyright protection information indicates copy free.

11. The control IC as claimed in claim 9, wherein said control IC is mounted on said recording apparatus which performs processing in compliance with the copyright information included in the content of said input digital signal, and said control IC has:

a processing block for detecting based on said copyright protection information whether the copyright information included in the content of said transmission

ABSTRACT

The CGMS unacceptable recorder accepts transmission frames only when the copyright protection information in a transmission header transmitted to the IEEE1394 serial bus indicates copy free. The CGMS acceptable recorder accepts transmission frames when the copyright protection information in the transmission header indicates copy free. When the copyright protection information in the transmission header indicates compliance with the copyright information contained in the content of the transmission frame, the copyright information in the content is fetched based on the signal format type information of the transmission header. As described herein above, a copy management information changeable apparatus such as a computer cannot accept data other than copy free signals from the digital interface.

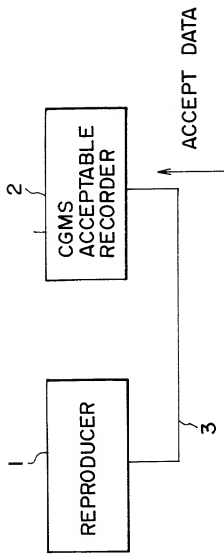


FIG. 1A

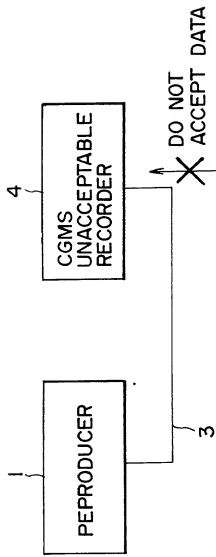
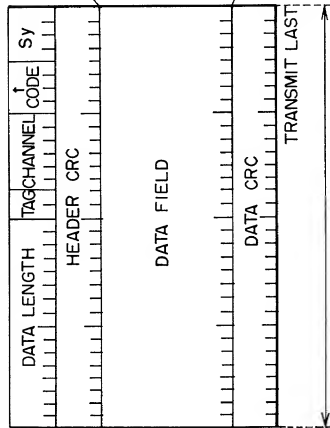


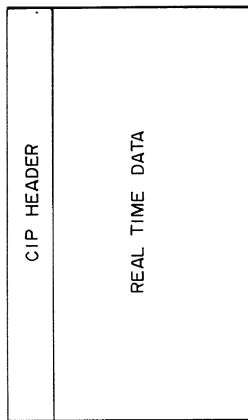
FIG. 1B

TRANSMIT FIRST



1 QUADLET = 32 BITS

FIG. 2



[illegible]

FIG. 3A

	OO	SID	DBS	FN	QPC	SPH	rsv	DBC
	IO	FMT	FDF					SYT

F1 G.3B

00	SID	DBS	FN	QPC	SPH	rsv	DBC
10	FMT	FDF					

FIG. 4

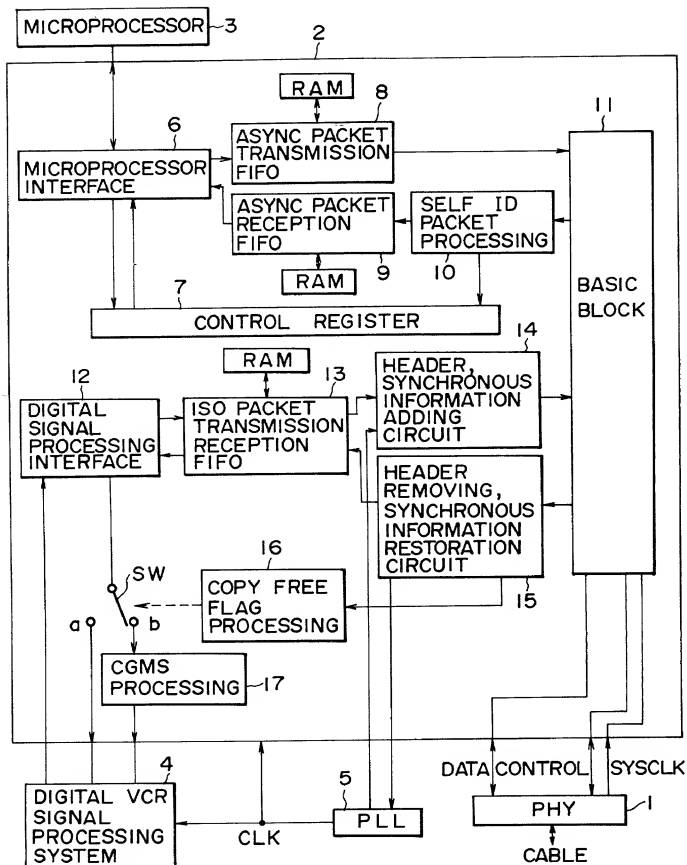
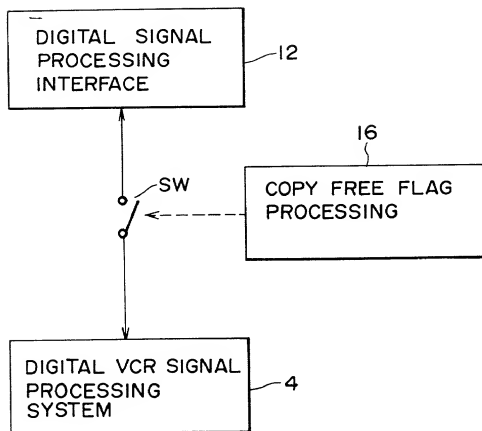


FIG. 5



SONY-P7751

Declaration and Power of Attorney For Patent Application

特許出願宣言書

Japanese Language Declaration

私は、下欄に氏名を記載した発明者として、以下のとおり宣言する：

私の住所、郵便の宛先および国籍は、下欄に氏名に続いて記載したとおりであり、

名称の発明に関し、請求の範囲に記載した特許を求める主題の本来の、最初にして唯一の発明者である（一人の氏名のみが下欄に記載されている場合）か、もしくは本来の、最初にして共同の発明者である（複数の氏名が下欄に記載されている場合）と信じ、

その明細書（該当する方に印を付す）

☐ ここに添付する。

☐ _____ 日に出願番号

第 _____ 号として提出し、

_____ 日に補正した。
(該当する場合)

私は、前記のとおり補正した請求の範囲を含む前記明細書の内容を検討し、理解したことを陳述する。

私は、連邦規則法典第37部第1章第56条(a)項に従い、本願の審査に所要の情報を開示すべき義務を有することを認める。

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DIGITAL RECORDING APPARATUS

AND COPYRIGHT PROTECTION

METHOD THEREOF

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as

Application Serial No. _____

and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration

私は、合衆国法典第35部第119条にもとづく下記の外国特許出願または発明者証出願の外国優先権利益を主張し、さらに優先権の主張に係わる基礎出願の出願日前の出願日を有する外国特許出願または発明者証出願を以下に明記する：

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior foreign applications

先の外国出願

Priority claimed

優先権の主張

P08-255464	Japan	5 September 1996
(Number)	(Country)	(Day-Month-Year Filed)
(番 号)	(国 名)	(出願の年月日)
P09-231980	Japan	28 August 1997
(Number)	(Country)	(Day-Month-Year Filed)
(番 号)	(国 名)	(出願の年月日)
(Number)	(Country)	(Day-Month-Year Filed)
(番 号)	(国 名)	(出願の年月日)

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
あり	なし
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
あり	なし
<input type="checkbox"/> Yes	<input type="checkbox"/> No
あり	なし

私は、合衆国法典第35部第120条にもとづく下記の合衆国特許出願の利益を主張し、本願の請求の範囲各項に記載の主題が合衆国法典第35部第112条第1項に規定の態様で先の合衆国出願に開示されていない限度において、先の出願の出願日と本願の国内出願日またはPCT国際出願日の間に公表された、進捗規則法典第37部第1章第36条に記載の、特許性に対し重要である全ての情報を米国特許商標庁に開示すべき義務を有することを認める：

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)
(出願番号)	(出願日)
(Application Serial No.)	(Filing Date)
(出願番号)	(出願日)

(環 況)	(Status)
(特許済み、係属中、放棄済み)	(patented, pending, abandoned)
(環 況)	(Status)
(特許済み、係属中、放棄済み)	(patented, pending, abandoned)

私は、ここに自己の知識にもとづいて行った陳述がすべて真実であり、自己の有する情報および信ずるところに従って行った陳述が真実であると信じ、さらに故意に虚偽の陳述を行った場合、合衆国法典第18部第1001条により、罰金もしくは禁錮に処せられるか、またはこれらの刑が併科され、またかかる故意による虚偽の陳述が本願ないし本願に対して付与される特許の有効性を損うことがあることを認識して、以上の陳述を行ったことを宣言する。

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Japanese Language Declaration

委任状：私は、下記発明者として、以下の代理人をここに
に選任し、本願の手続きを遂行すること並びにこれに関する
一切の行為を特許商標庁に対して行うことを委任する。
(代理人氏名および登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby
appoint the following attorney(s) and/or agent(s) to prosecute
this application and transact all business in the Patent and
Trademark Office connected therewith. (list name and reg-
istration number)

I HEREBY APPOINT THE FOLLOWING AS MY ATTORNEYS WITH FULL POWER OF SUBSTITUTION TO PROSECUTE THIS
APPLICATION AND TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH:

Karl A. Limbach	18,689	Alfred A. Equitz	30,922	Alan A. Limbach	39,749
George C. Limbach	19,305	W. Patrick Bengtsson	32,456	Douglas C. Limbach	35,249
John K. Ullkema	20,282	Mark A. Dalla Valle	34,147	Brian J. Keating	39,520
Neil A. Smith	25,441	Charles P. Sammut	28,901	Seong-Kun Oh*	
Veronica C. Devitt	29,375	Richard A. Nebb	33,540	Mayumi Maeda	40,075
Ronald L. Yin	27,607	Richard E. Wawrzyniak	36,048	Kent J. Tobin	39,496
Garold T. Sekimura	30,103	Alan D. Mirok	35,956	Michael R. Ward	38,651
Michael A. Steliman	29,444	Mark C. Pickering	36,239	Steven M. Santisi	40,157
Philip A. Girard	28,848	Kathleen A. Frost	37,326	J. Thomas McCarthy	22,420
Michael J. Pollock	29,098	Alan S. Hodes	38,185	Philip D. Reilly	41,415
Stephen M. Everett	30,050	Patricia Coleman James	37,155		

* Registered under 37 CFR 10.9(b)

LIMBACH & LIMBACH
Attn: Charles P. Sammut, Esq.
2001 Ferry Building
San Francisco, CA 94111-4262

直通電話連絡先：(名称および電話番号)

Direct Telephone Calls to: (name and telephone number)
Charles P. Sammut
(415) 433-4150

唯一のまたは第一の発明者の氏名	Full name of sole or first inventor
HISATO SHIMA	
同発明者の署名	Inventor's signature
日付	Date
住所	Residence
Kanagawa, Japan	
国籍	Citizenship
Japan	
郵便の宛先	Post Office Address
c/o SONY CORPORATION	
7-35, Kitashinagawa 6-chome,	
Shinagawa-ku, Tokyo, Japan	
第2の共同発明者の氏名 (該当する場合)	Full name of second joint inventor, if any
TERUYOSHI KOMURO	
同第2発明者の署名	Second inventor's signature
日付	Date
住所	Residence
Kanagawa, Japan	
国籍	Citizenship
Japan	
郵便の宛先	Post Office Address
c/o SONY CORPORATION	
7-35, Kitashinagawa 6-chome,	
Shinagawa-ku, Tokyo, Japan	

(第六またはそれ以降の共同発明者に対しても同様な情
報および署名を提供すること。)

(Supply similar information and signature for third and sub-
sequent joint inventors.)

Japanese Language Declaration

委任状: 私は、下記発明者として、以下の代理人をここに選任し、本願の手続を進行すること並びにこれに関する一切の行為を特許商標庁に対して行うことを委任する。(代理人氏名および登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

I HEREBY APPOINT THE FOLLOWING AS MY ATTORNEYS WITH FULL POWER OF SUBSTITUTION TO PROSECUTE THIS APPLICATION AND TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH:

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John K. Litzner	20,282	Mark A. Della Valle	34,147	Brian J. Keating	39,520
Neil A. Smith	25,441	Charles P. Sammut	28,901	Seong-Kun Oh*	
Vernice C. Devitt	29,375	Richard A. Nobb	33,540	Mayumi Maeda	40,075
Ronald L. Yin	27,607	Richard E. Wawrzyniak	36,048	Kent J. Tobin	39,496
Gerald T. Sakimura	30,103	Alan D. Minak	35,956	Michael R. Ward	38,651
Michael A. Scallan	29,444	Mark C. Pickering	36,239	Steven M. Santel	40,197
Philip A. Girard	28,848	Kathleen A. Frost	37,326	J. Thomas McCarthy	22,420
Michael J. Pollock	29,098	Alan S. Hodess	38,185	Philip D. Reilly	41,415
Stephen M. Everett-	30,050	Patricia Coleman James	37,155		

* Recognition under 37 CFR 10.334

Charles P. Sammut, Esq.
LIBBACH & LIMBACH L.L.P.
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 San Francisco, CA 94111-4262

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Direct Telephone Calls to: (name and telephone number)

Charles P. Sammut
 (415) 433-4150

唯一のまたは第一の発明者の氏名		Full name of 3rd inventor
同発明者の署名		Harumi Kawamura
日付	日付	Inventor's signature
住所	住所	Date
国籍	住所	Tokyo, Japan
郵便の宛先	国籍	Citizenship
	郵便の宛先	Japan
		Post Office Address
		c/o SONY CORPORATION
		7-35, Kitashinagawa 6-chome,
		Shinagawa-ku, Tokyo, Japan
第2の共同発明者の氏名 (該当する場合)		Full name of inventor
同第2発明者の署名	日付	Inventor's signature
住所	住所	Date
国籍	住所	Residence
郵便の宛先	国籍	Citizenship
	郵便の宛先	Post Office Address
		c/o SONY CORPORATION
		7-35, Kitashinagawa 6-chome,
		Shinagawa-ku, Tokyo, Japan

(第六またはそれ以降の共同発明者に対しても同様な情報および署名を提供すること。)

(Supply similar information and signature for third and subsequent joint inventors.)

Declaration and Power of Attorney For Patent Application
特許出願宣言書
Japanese Language Declaration

私は、下欄に氏名を記載した発明者として、以下のとおり宣言する：

私の住所、郵便の宛先および国籍は、下欄に氏名に続いて記載したとおりであり、

名称の発明に關し、該本の出願に記載した特許を本発明の主題の本発明の、最初にして唯一の発明者である（一人の氏名のみが下欄に記載されている場合）か、もしくは本発明の、最初にして共同の発明者である（複数の氏名が下欄に記載されている場合）と信じ、

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DIGITAL RECORDING APPARATUS AND
COPYRIGHT PROTECTION METHOD
THEREOF

the specification of which
(check one)

☐ is attached hereto.

☒ was filed on September 3, 1997 as

Application Serial No. 08/922,862

and was amended on _____
(if applicable)

私は、上記のとおり修正した該本の出願を含む訂正特許書の内容を検討し、理解したことを認める。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則正典第37部第1章第56条（a）項に従い、本特許の審査に所費の情報を開示すべき義務を有することを認める。

I acknowledge the duty to disclose all information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration

私は、合衆国法典第35部第119条にもとづく下記の外国特許出願または発明者証出願の外国優先権を主張し、さらに優先権の主張に係わる基礎出願の出願日以前の出願日を有する外国特許出願または発明者証出願を以下に明記する：

Prior foreign applications
先の外国出願

P08-255464

(Number)
(番号)

Japan

(Country)
(国名)

05/09/1996

(Day/Month/Year Filed)
(出願の年月日)

P09-231980

(Number)
(番号)

Japan

(Country)
(国名)

28/8/1997

(Day/Month/Year Filed)
(出願の年月日)

(Number)
(番号)

(Country)
(国名)

(Day/Month/Year Filed)
(出願の年月日)

Priority claimed

優先権の主張

<input checked="" type="checkbox"/> Yes あり	<input type="checkbox"/> No なし
<input type="checkbox"/> Yes あり	<input checked="" type="checkbox"/> No なし
<input type="checkbox"/> Yes あり	<input type="checkbox"/> No なし

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(Application Serial No.)
(出願番号)

(Filing Date)
(出願日)

(現状)
(特許済み、係属中、放棄済み)

(Status)
(patented, pending, abandoned)

(Application Serial No.)
(出願番号)

(Filing Date)
(出願日)

(現状)
(特許済み、係属中、放棄済み)

(Status)
(patented, pending, abandoned)

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(代理人氏名および登録番号を明記のこと)

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Karl A. Limbach	18,689	Philip A. Girard	28,848	Kathleen A. Frost	37,326
George C. Limbach	19,305	Michael J. Pollock	29,098	David Woycechowsky	39,079
John K. Ullkema	20,282	Stephen M. Everett	30,050	Alan S. Rhodes	38,185
J. William Wigert, Jr.	24,582	Alfred A. Equitz	30,922	Patricia Coleman James	37,155
Philip M. Shaw, Jr.	25,376	W. Patrick Bengtsson	32,456	Alan A. Limbach	39,749
Neil A. Smith	25,441	Mark A. Della Valle	34,147	Slade E. Smith	37,447
Carrie L. Walthour	27,755	Charles P. Sammut	28,901	J. Thomas McCarthy	22,420
Veronica C. Devitt	29,375	Richard A. Nebb	33,540	Ted Naccarella	33,023
Ronald L. Yin	27,607	Richard E. Mawzyński	36,048	Michael R. Ward	38,651
Gerald T. Sekimura	30,103	Alan D. Minak	35,956	Douglas C. Limbach	35,249
Michael A. Stallman	29,444	Mark C. Pickering	36,239		

書類の送付先:

Send Correspondence to:

Philip M. Shaw, Jr., Esq.
LIMBACH & LIMBACH
2001 Ferry Building
San Francisco, CA 94111-4262

直通電話連絡先: (名称および電話番号)

Direct Telephone Calls to: (name and telephone number)

Philip M. Shaw, Jr.
(415) 433-4150

第一のまたは第一の発明者の氏名	Full name of sole or first inventor	HISATO SHIMA
同発明者の署名	Inventor's signature	<i>Hisato Shima</i> Date Oct 30 '97
住所	Residence	KANAGAWA, JAPAN
国籍	Citizenship	JAPANESE
郵便の宛先	Post Office Address	c/o SONY CORPORATION 7-35, Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, Japan
第2の共同発明者の氏名 (該当する場合)	Full name of second joint inventor, if any	TERUYOSHI KOMURO
同第2発明者の署名	Second inventor's signature	<i>Teruyoshi Komuro</i> Date Oct 27 '97
住所	Residence	KANAGAWA, JAPAN
国籍	Citizenship	JAPANESE
郵便の宛先	Post Office Address	c/o SONY CORPORATION 7-35, Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, Japan

(第六またはそれ以降の共同発明者に対しても同様な情報および署名を提供すること。)

(Supply similar information and signature for third and subsequent joint inventors.)

Japanese Language Declaration

委任状: 私は、下記発明者として、以下の代理人をここに
選任し、本願の手続を遂行すること並びにこれに関する
一切の行為を特許商標庁に対して行うことを委任する。
(代理人氏名および登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby
appoint the following attorney(s) and/or agent(s) to prosecute
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Trademark Office connected therewith. (list name and reg-
istration number)

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AND TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH:

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J. William Wigert, Jr.	24,582	Alfred A. Equits	30,922	Patricia Coleman James	37,155
Philip M. Shaw, Jr.	25,376	M. Patrick Bengtsson	32,456	Alan A. Limbach	39,749
Neil A. Smith	25,441	Mark A. Della Valle	34,147	Slade E. Smith	37,447
Carrie L. Malthour	27,755	Charles P. Sammut	28,901	J. Thomas McCarthy	22,420
Veronica C. Devitt	29,375	Richard A. Webb	33,540	Ted Naccarella	33,023
Ronald L. Yin	27,607	Richard E. Nawrsyniak	36,048	Michael R. Ward	38,651
Gerald T. Sekimura	30,103	Alan D. Minak	35,956	Douglas C. Limbach	35,249
Michael A. Stallman	29,444	Mark C. Pickering	36,239		

書類の送付先:

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Direct Telephone Calls to: (name and telephone number)

Philip M. Shaw, Jr.
(415) 433-4150

唯一のまたは第一の発明者の氏名		Full name of <u>third</u> inventor	
同発明者の署名		HARUMI KAWAMURA	
日付	Inventor's signature	Date	
	<i>Harumi Kawamura</i>	Oct 27, 1997	
住所	Residence		
	TOKYO, JAPAN		
国籍	Citizenship		
	JAPANESE		
郵便の宛先	Post Office Address		
	c/o SONY CORPORATION		
	7-35, Kitashinagawa 6-chome,		
	Shinagawa-ku, Tokyo, Japan		
第2の共同発明者の氏名 (該当する場合)		Full name of <u>fourth</u> inventor	
同第2発明者の署名		Inventor's signature	
日付	Date		
住所	Residence		
国籍	Citizenship		
郵便の宛先	Post Office Address		
	c/o SONY CORPORATION		
	7-35, Kitashinagawa 6-chome,		
	Shinagawa-ku, Tokyo, Japan		

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および署名を提供すること。)

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Page of